

colours gently curved, nearly parallel with termen; veins partly blackened, especially towards base. Underside of fore wing with white blotch as above, in addition with a white streak between C and SC from base to about one-third and a small elongate white subapical blotch; of hind wing with the dark border reduced to a narrow median bar and diffuse streaks from this to the termen on  $R^1$ ,  $R^3$ ,  $M^1$ ,  $M^2$  and from  $SM^2$  to inner margin, the interspaces remaining white; the dark lines on  $SM^2$  and at base of C and of M thicker than above.

Huancabamba, Cerro del Pasco, E. Peru; one ♂.

Shape and general aspect agree with such species as *charisea*, Druce, &c.; but  $SC^{1-2}$  are stalked instead of anastomosing, their stalk connected by an extremely short bar with C, and in the hind wing the discocellulars are strongly oblique and  $SC^2$  is very short stalked with  $R^1$ . In the group mentioned, so far as I have tested it, the ♂ antenna is very much more strongly bipectinate,  $SC^1$  anastomoses (often quite strongly) with C, and  $SC^2$  arises separately—either from cell or from base of stalk of  $SC^{3-5}$ —anastomosing with  $SC^1$ ; but variation in some of these details will almost certainly be found.

LX. — *Additions to the non-Marine Molluscan Fauna of British and German East Africa and Lake Albert Edward.*  
By H. B. PRESTON, F.Z.S.

[Plates VII.-IX.]

*Gibbulina expatriata*, sp. n. (Fig. 1.)

Shell small, cylindrical, with very blunt apex, scarcely rimate, whitish; whorls 7, flat, sculptured with fine, closely set, transverse, arcuate striæ; sutures very lightly impressed, slightly crenellate below by the terminations of the transverse striæ; columella rather broadly expanded, descending nearly vertically, and extending into a broad, thick, white, well-defined callus, which joins the lip above; labrum white, thickened, reflexed, somewhat sinuous above; aperture rectangular; interior of shell glossy, showing the transverse sculpture through the shell.

Alt. 9, diam. maj. 3 mm.

Aperture: alt. 2, diam. 1.5 mm.

*Hab.* Shimbi Hills, British East Africa.

*Ennea quadrilateralis*, sp. n. (Fig. 2.)

Shell rather large, rectangularly ovate, perforate, somewhat thin, pale yellowish; whorls 6, sculptured with moderately fine, very closely set, arcuate, transverse striæ; sutures impressed, crenellated below by the termination of the transverse striæ; umbilicus narrow, partly concealed by the reflection of the columella; columella white, descending in a gentle curve and extending upwards and outwards into a thin callus, which reaches the lip above; labrum white, reflexed and terminating in a sinus, which forms with the parietal wall a triangular notch; aperture almost square, edentulate; interior of shell white.

Alt. 20·5, diam. maj. 17·5 mm.

Aperture: alt. 10, diam. 9·5 mm.

*Hab.* Shimbi Hills, British East Africa.

*Ennea gwendolinæ*, sp. n. (Fig. 3.)

Shell scarcely rimate, cylindrical, yellowish white, smooth, polished; whorls  $6\frac{1}{2}$ , moderately convex; sutures impressed, narrowly margined above; columella extending above into a thin, white, well-defined callus; labrum white, sinuous above, rather broadly expanded, thickened, and reflexed; aperture irregularly subrectangular, bearing a slightly curved or twisted parietal lamella on the right, a large, broadly bifid lamella on the outer lip, and a small denticle inside the basal lip, while the columella is internally developed into a broad shelf-like projection, ending in a thick, oblique, C-shaped lamella at its base.

Alt. 5, diam. maj. 1·5 mm.

Aperture: alt. 1, diam. ·5 mm.

*Hab.* Shimbi Hills, British East Africa.

Separable from *E. subflavescens*, Smith, from Mamboia, German East Africa, by its much narrower and smaller form; it lacks the small upper lamella on the outer lip, the upper basal denticle, and has only the oblique C-shaped lamella on the columella, instead of the three columellar lamellæ of that species.

*Ennea marionæ*, sp. n. (Fig. 4.)

Shell pupiform, transparent, vitreous, white, smooth, polished; whorls 6, the last finely puckered behind the labrum; sutures impressed, narrowly margined above; columella broadened above, narrowing obliquely below; labrum sinuous, opaque, white, rather broadly expanded, and reflexed; aperture irregularly rectangular, bearing a rather

coarse, slightly curved, parietal lamella, a thick triangular denticle on the outer lip, a short but well-developed lamella immediately opposite on the columella, and below this a small denticle at its base.

Alt. 4, diam. maj. 1.75 mm.

*Hab.* Shimbi Hills, British East Africa.

*Ennea jod*, sp. n. (Fig. 5.)

Shell minute, cylindrical, whitish, transparent, polished, smooth; whorls  $5\frac{1}{2}$ , flat; sutures incised, narrowly margined below; labrum white, not reflexed; aperture semielliptical, armed with a rather erect parietal lamella, a large lamella on the upper part of the labrum, below which occur four small denticles, of which the first, or that next to the large upper lamella, is the smallest; the columella is also broadened out into a shelf-like projection.

Alt. 2, diam. maj. .75 mm.

*Hab.* Shimbi Hills, British East Africa.

*Ennea sperabile*, sp. n. (Fig. 6.)

Shell pupiform, rimate, white, smooth; whorls 7, flat, the last bearing a single strangulation, and transversely puckered into five creases behind the aperture; sutures impressed; columella descending somewhat obliquely, outwardly expanded, broadening inwardly into a lamella or fold, and extending above into a thick well-defined parietal callus; labrum broadly reflexed, especially at the base; aperture irregularly subquadrate, armed with an oblique parietal lamella on the right side, a coarse lamella on the outer lip, and a small basal denticle internally situate on the left.

Alt. 5.25, diam. maj. 2.25 mm.

Aperture: alt. 1, diam. .75 mm.

*Hab.* Shimbi Hills, British East Africa.

Somewhat resembling *E. varians*, Smith, from Chiradzula Mountain, but without the obtuse spire, transverse sculpture, and small basal denticle of that species.

*Ennea delicatula*, sp. n. (Fig. 7.)

Shell minute, ovately cylindrical, glossy, shining, whitish; whorls  $6\frac{1}{2}$ , bluntly increasing to the fourth, and then again decreasing, sculptured with rather coarse, moderately distant, transverse costulæ; sutures impressed; columella descending in a slight curve; labrum white, polished, rather broadly reflexed; aperture somewhat ovately rectangular, bearing a

rather large, coarse, shortly curved parietal lamella on the right side, a very broad and coarse lamella on the outer lip, and a very small nodulous denticle at the base of the columella, the last somewhat deeply situate within

Alt. 3, diam. maj. 1.5 mm.

*Hab.* Shimbi Hills, British East Africa.

*Ennea radius*, sp. n. (Fig. 8.)

Shell rimate, ovate, with somewhat acuminate apex, yellowish white, moderately solid; whorls 7, the first six rapidly increasing, the last decreasing, sculptured with somewhat distant, arcuate, transverse costulæ, which become smaller, more numerous, and closely set just behind the labrum, the last whorl strangulate; sutures impressed; umbilicus narrow, deep; columellar lip erect, exerted, extending into a broad parietal callus; labrum white, expanded, slightly reflexed; aperture subrectangular, bearing a single, erect, parietal lamella, a broad and coarse binodulate projection on the outer lip, and a small but broad denticle on the columella.

Alt. 3.25, diam. maj. 2 mm.

*Hab.* Shimbi Hills, British East Africa.

Closely allied to *E. minuscula*, Morl.\*, from the island of Anjouan, but rather more coarsely sculptured than that species, which also lacks the denticle on the columella; moreover, the projection on the outer lip of *E. minuscula* is much smaller and not binodulate.

*Martensia gwendolinæ*, sp. n. (Fig. 9.)

Shell differing from *M. jenynsi*, Pfr., its nearest ally, in its more inflated whorls, more convex base, and in the spiral sculpture, which is much finer in the present species.

Alt. 9.25, diam. maj. 12, diam. min. 10.75 mm.

Aperture: alt. 5.5, diam. 5 mm.

*Hab.* Usagara, German East Africa.

*Martensia martensiana*, sp. n. (Fig. 10.)

Shell perforate, turbinately discoidal, white above, variegated on the base with greyish streaks and blotches, painted on the last whorl with a reddish-chestnut peripheral band; whorls 6, regularly increasing, the fifth somewhat convex, the last bluntly carinate at the periphery, sculptured with very fine, closely set, transverse, oblique striæ; sutures impressed;

\* Journ. de Conch. 1877, p. 340, pl. xii. fig. 5.

base of shell very indistinctly spirally striate; perforation very narrow; columella triangularly outwardly expanded, descending very obliquely; labrum simple; aperture broadly and obliquely lunate.

Alt. 11, diam. maj. 16, diam. min. 14 mm.

Aperture: alt. 6, diam. 7 mm.

*Hab.* Shimbi Hills, British East Africa,

Allied to *M. pyramidea*, v. Mart., but with more exerted spire, narrower and higher aperture, and finer transverse sculpture than has that species.

*Martensia monozonata*, sp. n. (Fig. 11.)

Shell perforate, turbinate, depressedly discoidal, thin, pale yellowish flesh-colour, painted with a super-sutural band of reddish purple, which appears as a super-peripheral band on the last whorl, ornamented below the periphery with radiate interrupted streaks of cream-colour; whorls  $5\frac{1}{2}$ , the last carinate at the periphery, sculptured with very fine, closely set, silky striæ; base of shell shining, very finely spirally striate; perforation very narrow; columella descending obliquely; labrum acute; aperture broadly sublunate.

Alt. 7, diam. maj. 12.25, diam. min. 10.5 mm.

Aperture: alt. 5, diam. 6 mm.

*Hab.* Shimbi Hills, British East Africa.

*Martensia* (?) *shimbiense*, sp. n. (Fig. 12.)

Shell broadly conoidal, thin, perforate, pale brown; whorls  $5\frac{1}{2}$ , the earlier whorls finely spirally sculptured, the later sculptured with fine, very oblique, closely set, transverse striæ, the last whorl strongly carinate at the periphery; base of shell closely spirally striate; suture impressed, margined above with a narrow ridge-like formation; umbilicus moderately narrow, very deep, partly concealed by the expansion of the columella; columella obtusely angled; labrum acute; aperture broadly sublunate.

Alt. 7.5, diam. maj. 10.5, diam. min. 9.5 mm.

Aperture: alt. 4, diam. 4.25 mm.

*Hab.* Shimbi Hills, British East Africa.

Owing to the spirally sculptured apical whorls I am in much doubt whether this species should rightly be placed in the section *Martensia*.

*Thapsia exasperata*, sp. n. (Fig. 13.)

Shell depressed, suborbicular, rimate, thin, horny, polished, fulvous; whorls 4, marked with lines of growth; sutures

impressed, faintly margined below; perforation very small; columella slightly curved and reflexed; labrum simple, arcuate; aperture sublunate.

Alt. 3·5, diam. maj. 7, diam. min. 6 mm.

Aperture: alt. 3, diam. 3·75 mm.

*Hab.* Shimbi Hills, British East Africa.

*Thapsia insulsa*, sp. n. (Fig. 14.)

Shell differing from *T. exasperata* in its much smaller size and more compact coiling, though having the same number of whorls, rather less depressed spire, and proportionately wider perforation, which in the present species, notwithstanding its much smaller dimensions, is of about the same diameter as *T. exasperata*.

Alt. 1·5, diam. maj. 3·25, diam. min. 2·75 mm.

*Hab.* Shimbi Hills, British East Africa.

*Phortion ariel*, sp. n. (Fig. 15.)

Shell small, globosely turbinate, thin, horny, pale brown; whorls 5, rather flat, sculptured with very fine and closely set, silky, transverse and minute, spiral striæ; sutures impressed; base of shell inflated; columella reflexed, vertically descending and forming an obtuse angle with the labrum which is acute and arcuate; aperture sublunate.

Alt. 4, diam. maj. 3·5 mm.

Aperture: alt. 1·75, diam. 1·5 mm.

*Hab.* Shimbi Hills, British East Africa.

The name *Phasis* being preoccupied in another branch of Zoology it becomes necessary to substitute a new name for the molluscan genus until now bearing this appellation, of which the type species is *P. menkeana*, Pfr., from the Cape of Good Hope; I therefore propose the name *Phortion* for this group.

*Rachis hieroglyphicus*, sp. n. (Fig. 16.)

Shell turbinately ovate, extreme apex black, the remainder of the shell whitish, painted on the upper whorls with two spiral rows of squarish, dark chestnut blotches, between which occurs a narrow, indistinct, interrupted band of a paler colour, the last whorl ornamented with numerous narrow bands of chestnut and black, the upper of these being much interrupted, the lower ones less so until the last which is continuous, the spaces between the last three being occupied with black transverse flame-markings and streaks which, together with the spiral bands, present the appearance of hieroglyphics,

columellar region stained with greyish brown; whorls 6, very minutely sculptured with indistinct spiral striæ; sutures impressed; columellar perforation extremely narrow; columella descending almost vertically and extending above into a very thin, scarcely perceptible, callus; labrum acute; aperture squarely ovate; interior of shell showing the curious painting quite as clearly as the exterior.

Alt. 16, diam. maj. 10·75 mm.

Aperture: alt. 8, diam. 6·25 mm.

*Hab.* Shimbi Hills, British East Africa.

*Rachis vicinus*, sp. n. (Fig. 17.)

Shell rimate, acutely conical, thin, pale straw-colour, encircled by three rather narrow bands of reddish purple, apex purplish; whorls 6, not very convex, very indistinctly and minutely spirally striate; sutures impressed; columella expanded over the very narrow fissure, descending nearly vertically and diffused into a thin whitish callus which joins the lip above; aperture very broadly, inversely auriform.

Alt. 15·75, diam. maj. 9·5, diam. min. 7 mm.

Aperture: alt. 7, diam. 3·5 mm.

*Hab.* Shimbi Hills, British East Africa.

Somewhat resembling *R. bengalensis*, Lk., a common East Indian form, but more conical and narrower in shape.

*Buliminus* (?) *margueritæ*, sp. n. (Fig. 18.)

Shell fusiform, thin, horny, pale brown; whorls 6, regularly increasing, somewhat convex, sculptured with closely set, oblique, transverse costulæ, the last whorl bearing a rather indistinct, narrow, semitransparent band at the periphery; sutures impressed and slightly crenellated by the terminations of the transverse costulæ; umbilicus narrow, partly concealed by the reflection of the columella; columella descending in a slight curve; labrum thin, slightly reflexed; aperture broadly inversely auriform; interior of shell showing the transverse sculpture through the test.

Alt. 10, diam. maj. 4 mm.

Aperture: alt. 3·5, diam. 2 mm.

*Hab.* Shimbi Hills, British East Africa.

*Buliminus* (?) *tribulationis*, sp. n. (Fig. 19.)

Shell differing from *B.* (?) *margueritæ* in its larger size and somewhat finer sculpture, the whorls, of which there is

one more in the present species, are rather flatter and the transparent peripheral band is lacking.

Alt. 12·25, diam. maj. 5 mm.

Aperture: alt. diam. 2·25 mm.

*Hab.* Shimbi Hills, British East Africa.

*Achatina iredalei*, sp. n. (Fig. 20.)

Shell ovately fusiform, moderately solid, the earlier whorls pink, the latter covered with a brownish periostracum, and painted with broad, irregular, somewhat distant and occasionally much broken, transverse chestnut bands and flame-markings; whorls 7, regularly increasing, rather flattened, decussately sculptured, the sculpture becoming obsolete towards the base; sutures impressed, crenellate and narrowly margined below; columella bluish white, a very thin callus joining it with the sutural region just inside the aperture, slightly excavated, descending nearly vertically; labrum simple, acute; aperture rather narrowly, elongately ovate, interior of shell bluish white.

Alt. 101, diam. 41 mm.

Aperture: alt. 48, diam. 29 mm.

*Hab.* Shimbi Hills, British East Africa.

*Curvella caloraphe*, sp. n. (Fig. 21.)

Shell ovately fusiform, perforate, rather solid, whitish, glossy; whorls 5, the first four flattish and finely sculptured with transverse, moderately closely set, arcuate striæ, the last more convex and sculptured with much more closely set, arcuate striæ; sutures impressed, broadly margined below, especially on the last whorl; umbilicus narrow, deep, partly concealed by the reflexion of the columella; columella white, outwardly expanded, bulging inwardly towards the centre, excavated below and diffused above into a thin, ill-defined, parietal callus which reaches the upper margin of the labrum; labrum acute, slightly reflexed below, dilated in front and then receding above; aperture inversely auriform; interior of shell white, showing the closely set, transverse sculpture through the test.

Alt. 11·5, diam. maj. 6·5, diam. min. 5 mm.

Aperture: alt. 7, diam. 3 mm.

*Hab.* Shimbi Hills, British East Africa.

Differing from *P. nyassana*, Smith, chiefly by its wider aperture, excavated columella, and in having the sutures noticeably margined, which is not the case in that species.



*Curvella mathildæ*, sp. n. (Fig. 22.)

Shell fusiform, thin, transparent, yellowish white, with blunt apex; whorls  $5\frac{1}{2}$ , sculptured with rather fine, arcuate, transverse growth striæ; sutures impressed, narrowly margined below; columella white, narrowly reflexed, descending vertically; labrum simple; aperture elongately, inversely auriform; interior of shell having a white streak at the base.

Alt. 11·5, diam. maj. nearly 5 mm.

Aperture: alt. 5, diam. 2 mm.

*Hab.* Usagara, German East Africa.

*Curvella pertranslucens*, sp. n. (Fig. 23.)

Shell fusiform, thin, transparent, whitish, horny, polished; whorls 6, sculptured with somewhat distant, transverse, arcuate growth striæ; sutures impressed, very narrowly margined below; perforation almost concealed by the reflexion of the columella; columella very slightly bulging in the middle, descending almost vertically; labrum acute, receding above and below; aperture inversely auriform.

Alt. 11, diam. maj. 4·25 mm.

Aperture: alt. 4·25, diam. 1·75 mm.

*Hab.* Shimbi Hills, British East Africa.

*Curvella shimbiense*, sp. n. (Fig. 24.)

Shell darker in colour, having one whorl more, and much more slender than *C. pertranslucens*, the whorls are rather flatter and the aperture shorter and narrower than in that species.

Alt. 10·5, diam. maj. 3·5 mm.

Aperture: alt. 3, diam. 1 mm.

*Hab.* Shimbi Hills, British East Africa.

*Homorus ordinarius*, sp. n. (Fig. 25.)

Shell elongately subulate, transparent brown, polished, shining, with mammillary apical whorls; whorls  $11\frac{1}{2}$ , rather flattened, somewhat puckered at the sutures, otherwise smooth, but for lines of growth; sutures impressed, narrowly margined below; columella whitish, widely excavated above, descending in an oblique curve and diffused into a thin callus which joins the lip above; labrum simple; aperture ovate.

Alt. 18·5, diam. maj. 3·75 mm.

Aperture: alt. 3, diam. 1·75 mm.

*Hab.* Shimbi Hills, British East Africa.

Differing from *S. nigella*, Morl.\*, from Angola, in its larger size, more convex whorls, smoother texture, higher and narrower aperture, and less curved columella.

BIOMPHALARIA, gen. n.

Shell subdiscoidal, planulate with concave spire, last whorl very large; umbilicus open, but shallow; aperture gaping; labrum greatly receding below.

Type of genus, *B. smithi*, Preston.

A curious form belonging to the Limnæidæ and which, judging from the shell alone, should be placed near *Choanophalus* from Lake Baikal.

*Biomphalaria smithi*, sp. n. (Figs. 26, 26 A.)

Shell subdiscoidal, depressed with concave spire, somewhat polished, whitish semitransparent in the peripheral region, tinged with pale reddish brown above and opaquely white below; whorls  $3\frac{1}{2}$ , lightly, but closely, marked with radiate lines of growth; sutures rather deeply impressed; umbilicus wide, shallow, slightly arched over in front by the labrum; labrum acute, obliquely obtuse-angled near the umbilical area, excavated and receding below, dilated in front, a rather coarse parietal callus joining the margins; aperture broadly ovate; interior of shell whitish, tinged with very pale reddish brown above, polished, shining.

Alt. 4, diam. maj. 9.5, diam. min. 7.25 mm.

Aperture: alt. 5, diam. 4.5 mm.

*Hab.* Lake Albert Edward (*J. E. S. Moore*).

Type in British Museum.

*Aferulus lugubris*, sp. n. (Fig. 27.)

Shell depressedly conoidal, solid, covered with a dark brown, finely laminiferous periostracum; whorls  $4\frac{1}{2}$ , somewhat inflated; sutures deeply impressed; umbilicus moderately wide, deep; peristome continuous, acute, slightly reflexed above; aperture large, nearly circular; interior of shell polished, greyish white; operculum laminiferous, slightly concave, with central nucleus and having about a dozen convolutions.

Alt. 21, diam. maj. 29, diam. min. 21 mm.

Aperture: alt. 14, diam. 13.75 mm.

*Hab.* Shimbi Hills, British East Africa.

\* Voy. Welwitsch, 1857, p. 80, pl. v. fig. 3.

*Tropidophora concinna*, sp. n. (Fig. 28.)

Shell turbinately conic, flesh-colour, painted on the last whorl with a moderately broad peripheral band of reddish purple, above which appear several indistinct and extremely narrow bands of a lighter colour; whorls 4, convex, the apical whorls smooth, the later whorls sculptured throughout with rather closely set, revolving liræ; sutures incised, umbilicus rather narrow, deep, partly concealed by the reflexion of the peristome; peristome continuous, narrowly dilated, slightly reflexed in the umbilical region; aperture nearly circular.

Alt. 11, diam. maj. 11, diam. min. 8·25 mm.

Aperture: alt. 5·5, diam. 5 mm.

Hab. Shimbi Hills, British East Africa.

## EXPLANATION OF THE PLATES.

## PLATE VII.

- Fig. 1. *Gibbulina expatriata*, sp. n. Enlarged.  
 Fig. 2. *Ennea quadrilateralis*, sp. n. Natural size.  
 Fig. 3. — *gwendolinæ*, sp. n. Enlarged,  $\times 7$ .  
 Fig. 4. — *marionæ*, sp. n. Enlarged,  $\times 7$ .  
 Fig. 5. — *jod*, sp. n. Enlarged,  $\times 7$ .  
 Fig. 6. — *sperabile*, sp. n. Enlarged,  $\times 7$ .  
 Fig. 7. — *delicatula*, sp. n. Enlarged,  $\times 7$ .  
 Fig. 8. — *radius*, sp. n. Enlarged,  $\times 7$ .  
 Fig. 9. *Martensia gwendolinæ*, sp. n. Enlarged.  
 Fig. 10. — *martensiana*, sp. n. Enlarged.

## PLATE VIII.

- Fig. 11. *Martensia monoxonata*, sp. n. Enlarged.  
 Fig. 12. — (?) *shimbiense*, sp. n. Enlarged.  
 Fig. 13. *Thapsia exasperata*, sp. n. Enlarged.  
 Fig. 14. — *insulsa*, sp. n. Enlarged,  $\times 7$ .  
 Fig. 15. *Phortion ariel*, sp. n. Enlarged.  
 Fig. 16. *Rachis heiroglyphicus*, sp. n. Enlarged.  
 Fig. 17. — *vicinus*, sp. n. Enlarged.  
 Fig. 18. *Buliminus* (?) *marqueritæ*, sp. n. Enlarged.  
 Fig. 19. — (?) *tribulationis*, sp. n. Enlarged.

## PLATE IX.

- Fig. 20. *Achatina iredalei*, sp. n. Natural size.  
 Fig. 21. *Curvella caloraphe*, sp. n. Enlarged.  
 Fig. 22. — *mathildæ*, sp. n. Enlarged.  
 Fig. 23. — *pertransluceus*, sp. n. Enlarged.  
 Fig. 24. — *shimbiense*, sp. n. Enlarged.  
 Fig. 25. *Homorus ordinarius*, sp. n. Enlarged.  
 Figs. 26, 26 A. *Biomphalaria smithi*, sp. n. Enlarged.  
 Fig. 27. *Aferulus lugubris*, sp. n. Natural size.  
 Fig. 28. *Tropidophora concinna*, sp. n. Enlarged.



1



2



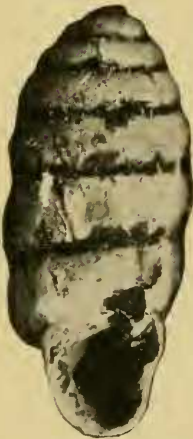
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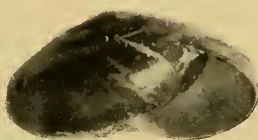
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23



26 A



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